

1. In a taste test, people who preferred Bolda Cola outnumbered those who preferred Cola Nola by a ratio of 17,139 to 11,426.
2. In a taste test, 5,713 more people preferred Bolda Cola.
3. In a taste test, 60% of the people preferred Bolda Cola.
4. In a taste test, people who preferred Bolda Cola outnumbered those who preferred Cola Nola by a ratio of 3 to 2.

Problem 1.1 Exploring Ratios and Rates

- A. Describe what you think each statement above means.
- B. Which of the proposed statements do you think would be most effective in advertising Bolda Cola? Why?
- C. Is it possible that all four statements are based on the same survey data? Explain your reasoning.
- D. In what other ways can you express the claims in the four proposed advertising statements? Explain.
- E. If you were to survey 1,000 cola drinkers, what numbers of Bolda Cola and Cola Nola drinkers would you expect? Explain.

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1.2 Targeting an Audience

Some middle and high school students earn money by delivering papers, mowing lawns, or baby-sitting. Students with money to spend are a target audience for some radio and television ads. Companies gather information about how much students watch television or listen to the radio. This information influences how they spend their advertising dollars.

As you work on this problem and the rest of the unit, you will see statements about ratio comparisons. In mathematics, it is acceptable to write ratios in different ways. Each way is useful.

Ways to Write a Ratio		
3 to 2	3 : 2	$\frac{3}{2}$

It can be confusing to see a fraction representing a ratio. A ratio is usually, but not always, a *part-to-part* comparison. A fraction usually means a *part-to-whole* comparison. The context can help you decide whether a fraction represents a ratio.

Problem 1.2 Analyzing Comparison Statements

Students at Neilson Middle School are asked if they prefer watching television or listening to the radio. Of 150 students, 100 prefer television and 50 prefer radio.

- A. How would you compare student preferences for radio or television?
- B. Decide if each statement accurately reports results of the Neilson Middle School survey.
 - 1. At Neilson Middle School, $\frac{1}{3}$ of the students prefer radio to television.
 - 2. Students prefer television to radio by a ratio of 2 to 1.
 - 3. The ratio of students who prefer radio to television is 1 to 2.
 - 4. The number of students who prefer television is 50 more than the number of students who prefer radio.
 - 5. The number of students who prefer television is two times the number who prefer radio.
 - 6. 50% of the students prefer radio to television.
- C. Compare statements in parts (4) and (5) above. Which is more informative? Explain.
- D. Consider only the accurate statements in Question B.
 - 1. Which statement would best convince merchants to place ads on radio? Why?
 - 2. Which statement would best convince merchants to place ads on television? Why?

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